**END TERM 1-2023**

**BIOLOGY (MARKING SCHEME)**

**231/1(PAPER1)**

Lack nuclear membrane/prokaryotic; Lack some organelles/Mitochondria/membrane-bound organelles; All are Unicellular; *Mark 1st 2*

1. Large sap vacuole; Has cell wall; nucleus at the periphery/closer to the cell membrane;
2. a) Chloroplast; b) Golgi bodies/apparatus; c) Mitochondrion;
3. i) Has cell wall that resists stretching

ii) Has contractile vacuoles that expel excess water;

iii) Increase surface area to capture more light rays needed for photosynthesis

1. a) Prevent evaporation of water;

b) Water level reduced; since the absorbed water molecules were lost via transpiration on the leaf surface;

c) Act as a control experiment;

1. a) Higher concentration of Carbon (IV) Oxide/Adequate light/Optimum temperature; leading to higher rate of metabolism/photosynthesis;

b) increase surface area for oxygen transport; since high altitude areas have low Oxygen concentration;

1. a) i) C; ii) A; iii) B;

b) It has pores; Covered by One cell thick/thin endothelium only;

1. a) A mechanism of maintaining state of equilibrium/balance in the various elements in the internal environment for efficient cell function;

b) Diffusion; Exudation; Storage of non-toxic wastes in tissues then lost via leaf/fruit/flower fall; Transpiration *Mark 1st 2*

1. Influence formation of Vitamin D; which cause the gut/colon/alimentary canal to absorb more phosphates and calcium ions required in teeth formation;
2. Lubricates food for easy peristalsis/movement; coat the inner stomach lining to prevent digestion by proteases/proteolysis/auto-digestion; *Mark 1st 2*
3. a) Investigate importance of Carbon (IV) Oxide in photosynthesis;

b) i) Blue Black; ii) Brown;

c) KOH absorbed all the Carbon (IV) Oxide/No CO2; thus no photosynthesis/starch formation that took place;

1. a) Streptococcus pnuemoniae

b) Vibrio cholerae

1. a) Allows entry of Carbon (IV) Oxide that is a raw material for photosynthesis;

b) Has Chloroplast; Has differentially thickened walls/Bean Shaped;

1. a) Seechi disk; b) Aquatic; *Accept Fresh water/Marine Rej Water alone*
2. a) Convert Prothrombin to thrombin; neutralize heparin/Anti-clotting factor;

b) Release of antibodies; Phagocytosis;

1. High rate of photosynthesis; since the snail supplied the plant with more Carbon (IV) Oxide that is a raw material for photosynthesis;
2. a) Long curved canines; Presence of carnassial teeth;

b) i) Mammalia;

ii) Presence of hair on the body; Heterodont dentition; Has well developed Ear pinna; *Mark 1st 2*

1. a) RQ = Volume of CO2 released ÷ Volume of O2 used

= 20cm3 ÷ 30cm3;

= 0.66;

b) Insoluble in water thus not easy to transport to respiratory sites; Needs a lot of Oxygen for oxidation;

1. a) Translocate/Transport manufactured food;

b) Star-shaped xylem; Xylem is centrally placed; Phloem alternate with arms of xylem; No pith;

c) tracheids;

1. a) 3 Body parts/Have Head, Thorax and abdomen; 3 pairs/6 legs; Have wings; *Mark 1st 1*

b) 1 a) 1 pair of wings …………………. Housefly;

b) 2 pairs of wings …………………. Dragon fly;

1. a) i) Plasmolysed;

ii) 0.3moldm-3 ;

b) No change in mass/% change in Mass is zero; since the cell sap concentration is isotonic to that of the surrounding solution;

1. a) Medulla oblongata;

b) external intercostal muscles contract; Internal intercostal muscles relax; ribcage moves upwards; then outwards;

1. a) Water + Carbon (IV) Oxide Glucose + Oxygen

b) i) Stroma;

ii) Grana/Granum;

1. a) Catalyse/Increase/Accelerate rate of metabolic reactions; Regulate/Control rate of reactions to avoid explosive outcomes;

b) Extreme pH; Extreme temperature; Low concentration of enzymes; High substrate concentration; More inhibitors; Less co-enzymes/co-factors; *Mark 1st 2*